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Acculturation, Achievement, and Aspirations of Catholic High School Seniors

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This study examined the ethnic background, recency of immigration, and college aspirations of the Catholic high school seniors in the Test Every Senior Project and explored the relationships of these factors to achievement. Data concerning 5,705 Catholic high school seniors in the Cleveland diocese were gathered. Through the demographic data, students were grouped as Northern, Central, and Southern Europeans. Students were also grouped as "newcomers" or "oldtimers" according to recency of family immigration. These Catholic seniors were compared to 7,129 public high school seniors on six standardized achievement tests. Catholic seniors achieved significantly higher on the tests dealing with process and understanding of the scientific enterprise, and with making inferences and assumptions across lines of convergent and divergent thinking. Public high school seniors achieved significantly higher on the test of recall of science concepts. Among the Catholic groups compared, significantly higher levels of performance are associated with Northern European college-bound students whose families have resided in America for more than two generations. No difference in college aspirations was noted between "newcomers" and "oldtimers." (BC)

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ACCULTURATION, ACHIEVEMENT, AND ASPIRATIONS OF CATHOLIC HIGH SCHOOL SENIORS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Introduction

The paucity of Catholics in the scientific community has been documented (Herzfeld, 1929; Knapp and Goodrich, 1952; Roe, 1952; Knapp and Greenbaum, 1953; Strodtbeck, 1958; Lenski, 1961; Greeley, 1963; and Rossi, 1966; Neuwien, 1966). However, factors contributing to this phenomenon have not been explored systematically. This study represents an initial attempt at gaining insight into factors which may contribute to Catholic students' choice of careers outside of science.

Dun and Dobzhansky (1952) indicate that race and religion are important variables in achievement and aspirations among high school students. Jensen (1967) argues that cultural background and environmental influences are determinants of individual differences in intelligence and educability. These studies suggest that ethnicity influences the pattern of mental abilities and Lesser, Fifer, and Clark (1965) found that within an ethnic group these patterns are not altered by social class variations. (Glaser, 1968; and Moynihan, 1967; Coleman, 1966).

Therefore, it was decided to examine the ethnic background, recency of immigration, and college aspirations of the Catholic high school seniors in the Test Every Senior Project and explore relationships with achievement as determined in the Test Every Senior Project.

Procedures

Test data and personal information were obtained as part of the Test Every Senior Project (Gallagher, 1969). In addition, data on ethnic background, recency of immigration of students' families, and occupational and educational aspirations were obtained on 5,705 Catholic high school seniors. Data were gathered on mark-sense scoring sheets and translated into punch card format.

Students were grouped in accordance with demographic information into three broad categories: the Northern, Central and Southern European

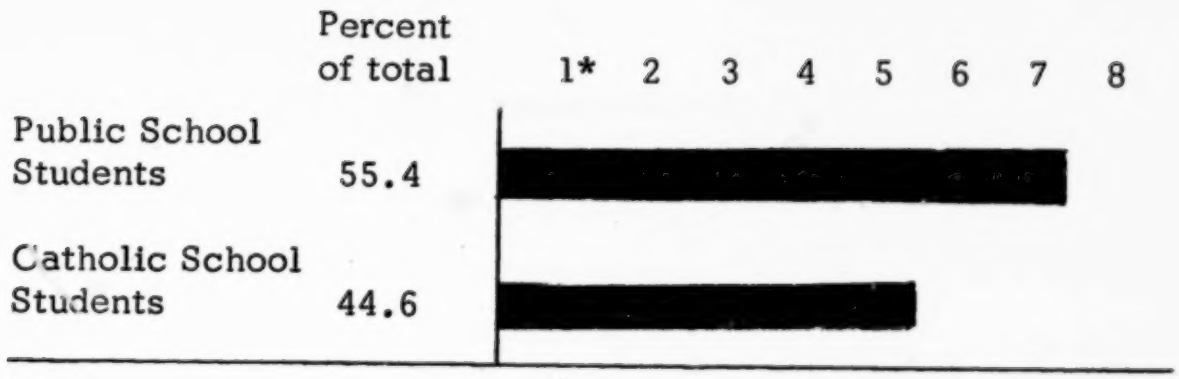
(Roucek, 1962). Northern Europeans came from Belgium, England, Holland, France, Germany, Ireland, the Scandanavian Peninsula, Scotland, Iceland, and smaller countries in this geographical area. Central Europeans migrated from Czechoslovakia, Hungary, Poland, Roumania, Russia, Yugoslavia, Serbia, and the related Lithuanian areas. Southern European countries with immigrants to the United States in the study are Greece, Italy, Lebanon, Spain, Portugal, and Turkey.

Students who did not have forebears from European countries were classified into a special "other" group. Among these are Africans, Chinese, Japanese, the Philippino, Korean, and the American Indian. This group was extremely small (66 students) so it was subsequently dropped from this study.

Operationally the ethnicity of the father was the criterion for dividing the population in the three groups. If the father was a hybrid (of two or more ethnic backgrounds) the deciding factor was to classify by Northern European first; Central European, second; and Southern European, third. In a few instances where no father's ethnic background was reported (6 instances), the student was classified by the mother's background.

Students were also grouped according to the recency of families' immigration. Seniors born outside the United States were categorized as "newcomers". Seniors whose parents were born in the United States were classed as "oldtimers".

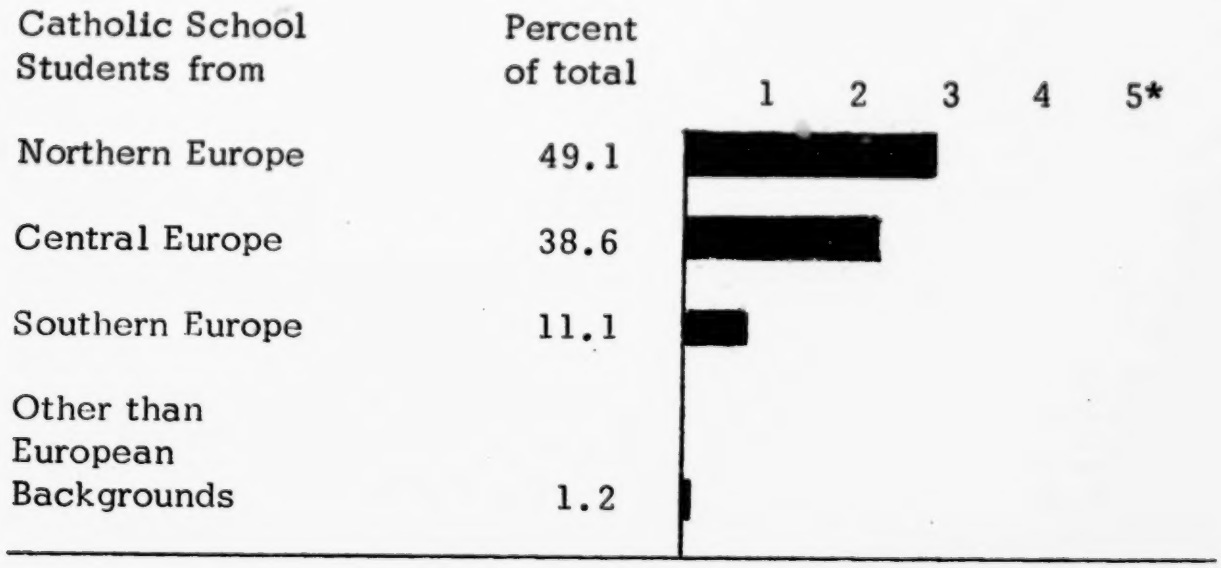
In Figure 1 the total population of Test Every Senior Project was graphed. The "public" school population is made up of 7,129 students. The students from Catholic schools (5,705) came from thirty-four schools of the diocese of Cleveland.



*in thousands

Figure 1. Percent of total population in Test Every Senior Project when divided into public and other non-Catholic schools as compared with Catholic school population.

The population of the Catholic schools was divided by four into the groups signified by students in response to the ethnicity of the father. In Figure 2 the total Catholic population is subdivided into Northern, Central, Southern European backgrounds, and the remainder in the "Other" group.



*in thousands

Figure 2. Percent of total Catholic population in Catholic high school senior classes of 1968 of the Diocese of Cleveland divided into Northern, Central, Southern European and "Other" racial, non-European ethnic backgrounds.

Although Catholic students furnished additional information in their questionnaire regarding lifetime careers in addition to their college aspirations, only the college aspirations variable will be studied in this paper.

The achievement variable studied included six of the eight instruments used in the Test Every Senior Project. These were:

1. The Watson-Glaser Critical Thinking Appraisal
2. The Iowa Test of General Background in the Natural Sciences
3. Klopfer's Test on Understanding Science
4. The Biological Sciences Curriculum Study's Processes of Science Test
5. The Iowa Test of Interpretation in the Natural Sciences
6. Korth's Test on the Social Aspects of Science.

Hypotheses

Six hypotheses were advanced in the present study.

Two preliminary hypotheses were made concerning the total population in the Test Every Senior Project.

1. More students in Catholic schools aspire to go to college than students in public schools.
2. Students in Catholic schools achieve higher scores in the six test areas selected from the Test Every Senior Project.

Two hypotheses were made regarding the relation of college aspirations and family background:

1. Oldtimers are different from newcomers in their college aspirations.
2. Northern, Central, and Southern ethnic groups differ in their college aspirations.

Two hypotheses were made concerning the mean scores of the Catholic population on Korth's Test on the Social Aspects of Science:

1. The Northern, Central, and Southern ethnic groups are different.
2. The College and No College groups are different when grouped according to ethnic background.

Results

Comparison of Catholic and public high school students' college aspirations is shown in Table 1. The percentage of Catholic seniors who aspire to attend college is significantly higher (p .001).

It was hypothesized that Catholic high school seniors would score higher than public high school seniors on the Test Every Senior Battery. Students in the two groups were compared on six tests of achievement. From the data in Table 2, it can be seen that the Catholic high school seniors' mean score is significantly higher than the public high school seniors' mean score in four test areas:

1. Test on Understanding Science
2. Processes of Science Test
3. Iowa Test of Interpretation-Natural Sciences
4. Test on the Social Aspects of Science

TABLE 1

STUDENTS IN TEST EVERY SENIOR PROJECT
INDICATING COLLEGE AND NO COLLEGE ASPIRATIONS
WHEN DIVIDED INTO CATHOLIC AND PUBLIC HIGH SCHOOL GROUPS

	CATHOLIC		PUBLIC		X^{2*}
	N	%	N	%	
COLLEGE	4262	75.5	4739	70.0	
NO COLLEGE	1377	24.5	2027	30.0	47.122*

*p .001

TABLE 2

COMPARISON OF MEANS OF ALL SCHOOLS IN TEST EVERY SENIOR PROJECT WITH CATHOLIC SCHOOL MEANS AND OTHER SCHOOL MEANS

TEST	Students	All Schools			Catholic Schools			Other Schools			
		N	X	SD	N	X	SD	N	X	SD	t°
Watson Glaser	1601	62	55.59	12.14	34	56.94	7.71	28	54.98	5.64	1.151
Iowa Test of Natural Sciences Background	1563	62	33.35	12.71	34	32.16	4.85	28	34.34	3.01	*2.160
Test on Understanding Science	1471	62	30.23	8.60	34	31.48	3.57	28	30.03	2.66	*1.838
Processes of Science Test	1512	62	25.03	7.29	34	26.35	3.27	28	24.78	2.42	*2.166
Iowa Interpretation-Natural Sciences	1637	62	25.16	8.82	34	26.54	3.84	28	24.92	3.27	*1.799
Test on Social Aspects of Science — Total Test	1494	62	33.26	7.15	34	34.63	2.20	28	32.87	2.76	*2.732
Part I		62	28.30	5.98	34	29.39	1.68	28	27.93	2.31	*2.910

*P <.05 using a one-tailed t-test

°Comparison of Catholic Schools with Other Schools

Data presented in Table 3 indicates that college aspirations of "oldtimers" and "newcomers" do not differ significantly.

TABLE 3

ASPIRATIONS FOR COLLEGE AND NO COLLEGE OF CATHOLIC HIGH SCHOOL SENIORS IN RELATION TO GENERATIONS IN AMERICA

	COLLEGE		NO COLLEGE		X^{2*}
	N	%	N	%	
Oldtimers	4034	75.7	1298	24.3	
Newcomers	228	74.3	79	25.7	0.2326

*n.s. with 1 df

In Table 4 a comparison of college aspirations of students is presented according to their ethnic background. Differences are significant with Northern European groups having a greater proportion of students aspiring to college.

TABLE 4

ETHNICITY EFFECTS ON COLLEGE AND NO COLLEGE VARIABLES OF CATHOLIC HIGH SCHOOL SENIORS

	COLLEGE	NO COLLEGE	X^{2*}
Northern European	2190	612	
Central European	1593	609	
Southern European	479	156	22.6

*significant at p .01 with 2 df

TABLE 5

Comparison of Means of Test On the Social Aspects of Science Scores of Students Classified by Ethnic Background and Generation in the Catholic High School Sample

Generation	Ethnic Groups	N	Mean	S.D.	t	
OT	Northern vs. Central	296 230	29.97 29.23	5.125 5.312	1.612	n.s.
OT	Northern vs. Southern	63	28.59	5.389	1.386	n.s.
OT	Central vs. Southern				-.8362	n.s.
NC	Northern vs. Central	8 21	32.25 29.62	5.45 3.98	1.097*	n.s.
NC	Northern vs. Southern	12	27.33	6.18	1.66*	$p < .05$
NC	Central vs. Southern				-.93*	n.s.

*Mann Whitney U Test

TABLE 6

Comparison of Means of Test on the Social Aspects of Science
by Ethnic Groups and College Intentions for Catholic High School Seniors

Ethnicity	College N	$\bar{X}$	SD	No College N	$\bar{X}$	SD	df	t*	
Northern	249	30.60	4.89	46	26.70	5.20	295	4.922	$p < .01$
Central	185	29.60	5.29	46	27.67	5.20	230	2.211	$p < .05$
Southern	51	28.53	5.54	12	28.83	5.17	62	-.173	n.s.
Northern		30.60							
vs.									
Central		29.60					433	2.04	$p < .05$
Northern		30.60							
vs.									
Southern		28.53					299	2.689	$p < .01$
Central		29.60							
vs.									
Southern		28.53					135	1.260	n.s.

*one-tailed test

Northern, Central and Southern European ethnic groups showed small significant differences in mean scores of groups on Korth's Test on the Social Aspects of Science (Table 5). In only one comparison, the Northern with the Southern group, there was a significant difference at a p .05.

When students with college aspirations were compared with those who did not aspire to college in terms of ethnic groups on the mean score of the groups who took Korth's Test on the Social Aspects of Science, significant differences were observed in the Northern European group within and across other ethnic groups (Table 6).

Discussion

The Test on the Social Aspects of Science was chosen because it measures a range of aspects closely related to interactions between science technology and society. It was assumed that students who are inclined toward a science career would be more aware of the social implications of science. And since the basic issue underlying this study concerns absence of Catholics in scientific careers, it was decided that this test would be most appropriate for comparison among groups.

Relationships found in this study between ethnicity, recency of immigration, and college aspirations in terms of Catholic high school seniors reveal trends that are supported by Rossi, Greeley, Glaser, Moynihan, and Coleman (1963, 1965, 1966, 1968). Differences in aspirations between students in public and in Catholic high schools may be due to selection factors favoring the latter group. The differences in cultural background or inherited patterns of ability (Jensen, 1968; Trow, 1967; Stodolsky and Lesser, 1967) are evident in the results of the research presented here. Northern European groups have been in the United States longer. This group traditionally has had greater numbers interested in the humanities rather than the sciences (Greeley, 1963). That all three ethnic groups show high percentages of college aspirations may represent a dramatic reversal of a long standing social trend among Catholic

groups, particularly among the "oldtimers" Central European groups, who originated from peasant, non-college oriented backgrounds (Greeley, 1963). The Central European group has not been in this country as long as the Northern European group. Some caution must be made concerning the various ethnic groups, especially within Catholicism (Greeley, 1963). To be a member of an ethnic group means various things at various stages of the acculturation process as Glaser (1965, 1968) has pointed out.

No differences were found in college aspirations between "oldtimers" and "newcomers". Other studies indicate that a smaller proportion of "newcomers" are college bound (Knapp and Greenbaum, 1953). This discrepancy can be accounted for in two ways:

1. Today's "newcomers" to the United States are different in SES from those a generation ago, and/or
2. "Newcomers" who send their children to Catholic high schools are different from the average of all "newcomers".

The fact that the Catholic group did significantly better in four test areas of the Test Every Senior Project Battery is revealing. The tests in which the Catholic excelled have to do with process and understanding of the scientific enterprise, with inferences and assumptions across lines of convergent and divergent thinking. The one test in which public high school seniors surpassed the Catholic high school group is a test of basic recall of science concepts. The rigidity so often ascribed to Catholic schooling is not evidenced in this study.

Further research is needed to assess career choices among Catholic high school seniors. Are a greater proportion of high school seniors choosing careers in science currently than heretofore? Also, is the career choice pattern different among different ethnic groups? Does the higher proportion of college aspirations among the Northern European group reflect a corresponding increase in choice of science careers?

Summary

This study investigated the relationship between the ethnicity, recency of immigration, aspirations and achievement of Catholic high school seniors. The findings indicate that significantly higher levels of performance are associated with Northern European, college bound students whose families have resided in America more than two generations. Caution needs to be exercised in generalizing from these data. However, the findings of this study warrant further research concerning the interactions between ethnicity and generation patterns on school learning.

Acknowledgement

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